Fermilab Today

Tuesday, June 28, 2005

Calendar

Tuesday, June 28

12:00 p.m. Summer Lecture Series - 1 West
Speaker: J. Lykken, Fermilab
Title: Extra Dimensions
3:30 p.m. Director's Coffee Break - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Wednesday, June 29

11:00 a.m. Fermilab ILC R&D Meeting - 1 West
Speaker: V. Kuchler, Fermilab
Title: ILC Conventional Facilities Update
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4:00 p.m. Fermilab Colloquium - 1 West
Speaker: J.-H. Andersen, University of Michigan
Title: Perception of the Extreme Unseen – From Mathematics to Aesthetic Coherence

Weather

Chance Thunderstorms **93º/69º**

Extended Forecast

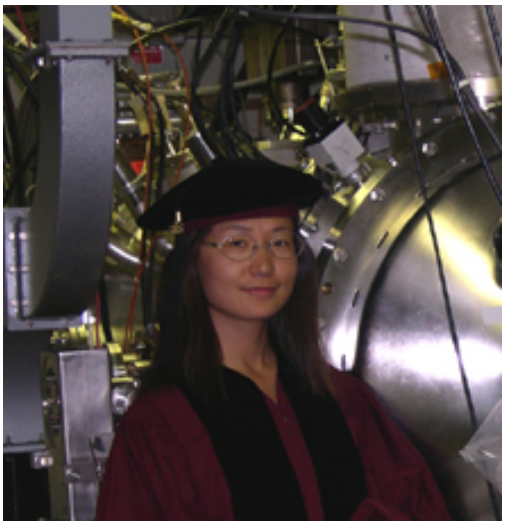
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Yin-e Sun Wins First Place for Beam Dynamics Paper



Yin-e Sun, winner of PAC 05's "Outstanding Technical Paper by a Student," recently received her Ph.D. from the University of Chicago for research on beam dynamics. (Click on image for larger version.)

Yin-e Sun received first place for "Outstanding Technical Paper by a Student" at the 2005 Particle Accelerator Conference (PAC). Her paper, entitled Effects on Flat-Beam Generation from Space-Charge Force and Beamline Errors, discussed her work on the flat beam experiment at the Fermilab/NICADD Photoinjector Laboratory (FNPL), located at Fermilab's A0 building. Sun recently received her Ph.D. from the University of Chicago for research in the same field and is now employed at Argonne National Lab.

In the FNPL, a photo-cathode hit by a laser emits a beam of electrons through the photoelectric effect. Under proper experimental conditions, the emerging beam of electrons has cylindrical symmetry and large angular momentum;

Director's Corner

Good Morning!

Mike Witherell

I wanted to use this, my last Director's Corner, to talk about the laboratory's future.

Fermilab will be the central U.S. laboratory for research in particle physics, working closely with other laboratories and universities to build and carry out the most important experiments in the field.

Fermilab's vitality in the future depends on four things:

- great opportunities for discovery in particle physics;
- a plan for the laboratory that puts U.S. particle physicists at the center of these discoveries;
- a strong record on the laboratory's present program and projects; and
- a commitment by the government to be at the forefront of particle physics research.

We are in good shape for the first three items. We will learn more new things about the nature of matter, space, and time in the next ten years than we have in decades. And Fermilab will have a critical role in the most important discoveries. We need to manage carefully the transition coming throughout the national research program, but we can do that.

Although nobody can guarantee the fourth item, I hope and believe that the

Tuesday, June 28
Golden Broccoli & Cheese Soup
Hickory Smoked BBQ Pork $4.85
Breaded Veal With Mushroom Cream Sauce $3.75
Spaghetti with Meat Balls $3.75
Toasted Almond Chicken Salad on Croissant $4.85
Supreme Baked Pizza $3.00
Chicken Tostadas $4.85

The Wilson Hall Cafe now accepts Visa, Master Card, Discover and American Express at Cash Register #1.

Wilson Hall Cafe Menu
Chez Leon is now open. Call x4512 to make your reservation.

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however, many experiments require a flat beam of electrons. The angular momentum of the beam can be removed using several skew quadrupole magnets, which results in the cylindrical beam being transformed into a flat beam. Sun and her colleagues, including Fermilab scientist Philippe Piot and her University of Chicago Ph.D. advisor Kwang-Je Kim, closely studied the round-to-flat beam transformation, examining the sensitivity of the beam to potential errors in quadrupole strength and alignment and investigating the effects of the repulsive space-charge force that each electron experiences due to the surrounding electrons.

"The beam dynamics involved in the flat-beam experiment are really interesting, and this work could potentially benefit other research," Sun said. "There's a potential application in a large project proposed at the Lawrence Berkeley lab, and even flatter polarized beams could be used for the International Linear Collider."

Out of approximately 100 student papers submitted to PAC, Sun's was singled out for recognition by a panel of 10 scientists, who judged both the work itself and the presentation. As a first place winner, Sun was awarded a certificate and a $500 cash prize.
--Elizabeth Wade

Enjoy Memories of Summer With DASTOW Photo Gallery

government will make the necessary commitment. The coming discoveries will help to convince people that it is important for the U.S. to stay at the forefront of particle physics in the future.

For my own part, I am dying to know the answers to our questions about the Higgs, dark matter, neutrinos, and the rest. I am looking forward to finding out those answers over the next few years.

Milestones

Alice Lengvenis, secretary of the Proton Department in the pioneering Fermilab days of the 1970s, died on 18 June 2005 in Phoenix.

Accelerator Update

June 24 - 27
- During this 72 hour period Operations established three stores that provided the experiments with approximately 61 hours and 2 minutes of luminosity
- Booster RF sparking
- Low Beta Magnet movement lowers luminosity

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Air Pollution Action Day:
Tuesday, June 28
Today, Tuesday, June 28, the air quality is forecasted to reach unhealthy levels Residents of the Metropolitan Chicago area are asked to take actions to reduce ozone and particle pollution. Suggested actions include:
1. Limit driving. Rideshare, carpool, walk or bike.
2. Take public transportation.
3. If you must drive, avoid excessive

The Fire Department "Smoke House" (Click on image for larger version.)

Another large turnout turned the first summertime Daughters and Sons to Work Day at Fermilab (DASTOW '05) into yet another memorable event, and the photographic skill of Visual Media Services has captured the spirit of the day for an on-line image album. The new offerings of science presentations through the Education Office provided engaging learning experiences for middle-school-age daughters and sons, and the new Pioneer Adventure on the prairie added another outdoor attraction. The Cryo Show, the Fire Department "Smoke House" and the buffalo pasture visit were at their annual energetic best, and the DASTOW poster (there are still some left in Public Affairs) designed by VMS's Cindy Arnold is a distinctive keepsake. Even with the heat, it was a cool day. Join us again next summer for another DASTOW, with more surprises to come!

View DASTOW '05 Web Picture Book

--Mike Perricone

In the News

idling, abrupt starts and use I-PASS.
4. Refuel your vehicle after 7 P.M., when sunlight is not as strong.
5. Do not use gasoline powered recreational vehicles on Action Days.
6. Postpone lawn mowing and gardening chores that use gasoline-powered equipment on Action Days.
7. Use a charcoal chimney or electric starter instead of lighter fluid when starting a barbeque grill.
8. Limit use of household and personal products that cause fumes.
9. Conserve energy at home to reduce energy needs from power plants.
10. Do not burn leaves or other yard waste.
11. Postpone burning wood in fireplaces on Action Days.

Upcoming Classes

July 18 - 21: Learning Perl
July 19 & 20: Interpersonal Communication Skills
more information

Artist Jan-Henrick Andersen Speaks at Colloquium on Wednesday

Artist and industrial designer Jan-Henrik Andersen will be speaking about his exhibit, *Sized Matter: Perception of the Extreme Unseen*, on Wednesday, June 29. From 4-5 p.m. in 1 West, Andersen will explain his artistic representation of the Standard Model particles in a lecture entitled *From Mathematics to Aesthetic Coherence*. A reception for the artist in Wilson Hall will follow the colloquium. Both events will be open to the public. *Sized Matter* is currently hanging in the Fermilab Art Gallery.
more information

Unix Users Meeting

From *Scientific American*, July 2005

The Mysteries of Mass

Physicists are hunting for an elusive particle that would reveal the presence of a new kind of field that permeates all of reality. Finding that Higgs field will give us a more complete understanding about how the universe works

By Gordon Kane

Most people think they know what mass is, but they understand only part of the story. For instance, an elephant is clearly bulkier and weighs more than an ant. Even in the absence of gravity, the elephant would have greater mass--it would be harder to push and set in motion. Obviously the elephant is more massive because it is made of many more atoms than the ant is, but what determines the masses of the individual atoms? What about the elementary particles that make up the atoms--what determines their masses? Indeed, why do they even have mass?

Read more

The next Unix Users Meeting will be on Wednesday, June 29 from 1:00 pm to 2:30pm in Curia II.

Agenda:

1. RSS feeds by Dave Ritchie
2. Auto blocking by Randy Reitz
3. SLF update by Connie Sieh

NALWO English Classes

Meet in the Users' Center on Monday and Friday mornings from 9:30am until 11:00 am. Volunteer teachers work with students at all levels. Classes are free; you may begin any time. Two sessions meet simultaneously; one for beginners and one for more advanced students. There will be no English Classes during the month of July, classes will resume on Monday, August 1, 2005.

Children's Treasure Hunt Party on August 5

This two-hour event offers an introduction to the safe use of snorkeling gear and the aquatic environment. The party will be held on August 5 at the Village Pool from 9 AM - 11 AM. The cost for each child is $20.00. Children ages 5 to 12 years of age are accepted. Children must know how to swim and be comfortable in the water. Registration deadline is July 29. Registrations forms can be found on the Recreation web page.

Upcoming Activities